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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/084,650	02/28/2002	Leonid Merkoullovitch	11483-159	2480
1059	7590	08/21/2007		
BERESKIN AND PARR 40 KING STREET WEST BOX 401 TORONTO, ON M5H 3Y2 CANADA			EXAMINER TROTTER, SCOTT S	
			ART UNIT 3694	PAPER NUMBER
			MAIL DATE 08/21/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/084,650	Applicant(s) MERKOULOVITCH ET AL.	
	Examiner Scott S. Trotter	Art Unit 3694	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 14 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 5-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 5-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of the Claims

1. This action is response to the response filed on June 8, 2007. Claims 5-16 are pending and are examined. Claims 1-4 are canceled.

Response to Arguments

2. Applicant's arguments filed June 8, 2007 have been fully considered but they are not persuasive.

In response to the applicant's argument that the produced generator is tangible it is pointed out that the generator is simply a subroutine to be called to produce some data no more tangible than any other computer program. The mere passing of a thought does not make a thought tangible.

In response to applicant's arguments about a person of ordinary skill in the art not being able to combine Excel with Browne. Excel is a program that a developer can instruct to call any of a large library of functions to solve data analysis problems. Browne shows additional functions that could be called to solve the problems being discussed here.

Regarding applicants argument about the need for a data file. Excel teaches the use of a random number generator including being able to specify the type of distribution desired which even includes producing fixed patterns. (See *Excel* page 651 and 652) If what is needed to avoid having a data file is a random data distribution Excel can generate one.

Claim Rejections - 35 USC § 101 Utility

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 5-9 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. A tangible result is required to satisfy 35 U.S.C. §101 utility requirement claims 5-9 software subroutines, which are not tangible results because they consist of a computer program per se. **See MPEP §2106.01 part I.**

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 5-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Browne et al. (U.S. Patent 7,228,290 B2 the patent that issued from U.S. PG-Pub 2003/0014356 A1) in view of Microsoft Excel, Official Notice, and admitted prior art.

As per claim 5:

- a. It is old and well known in the art of computer programming that libraries consist of subroutines (some of which are called functions) to be called by a developer when they want to execute that particular subroutine. It is also old and well known in the art of

programming that in object oriented programming objects are simply the linking of data and subroutines where the subroutines are linked to the data they manipulate then referring to both as objects. Microsoft Excel teaches a random number generator that can be configured to provide one of many different kinds of random distributions or even a fixed pattern if needed therefore a subroutine to produce such patterns exists and could obviously be placed into a library of subroutines. (See *Microsoft Excel 2000 Bible Quick Start, Pages 651 and 652.*) Excel can provide many numbers fitting a desired distribution at once. (See *top of page 652.*)

- b. As for transforming objects it is admitted prior art that Excel includes many functions that can transform numbers such as those dealing with imaginary numbers.
- c. As for operating on a generator with another operator creating a new generator. Having a new operator operate on the results of a function producing a new function is common in Excel. (See *Mastering Excel 97 page 185.* =RAND()*1000 would be one kind of generator the addition of the INT operator =INT(RAND()*1000) is a different generator.)

While Browne does not explicitly calling objects in an object oriented library one of the preferred implementations is in C++ (See *column 8 lines 39-41.*) which is an object oriented programming language it would have been obvious to a user of ordinary skill in the art at the time the invention was made that subroutines could be formatted for use in an object oriented library to allow programmers to optimize an implementation and that such subroutines existed because either Excel had implemented the functionality or it was present in Browne.

Art Unit: 3694

As per claim 6:

The sequence that Browne teaches producing can be either random or stochastic (*See Browne column 1 lines 64- column 2 line 11.*) therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have used stochastic sequences.

As per claims 7 and 9:

It is admitted prior art that Excel allows functions results to be inputs to other functions. Since generators, maps, accumulators, and composition operators are functions they can provide results to be inputs other functions including other instances of the same function. Therefore it would have been obvious to a user of ordinary skill in the art at the time the invention was made to have implemented functions that were allowed to be inputs to other functions because of the need to combine calculations such as calculating both sub-totals and grand totals.

As per claim 8:

It is admitted prior art that Excel allows inputs to functions to be the result of a function including such basic functions as addition, subtraction, multiplication, and division. Therefore it would have been obvious to a user of ordinary skill in the art at the time the invention was made to have implemented functions that were allowed to be inputs to other functions because of the need to combine calculations such as calculating both sub-totals and grand totals.

Art Unit: 3694

7. Claims 10, 11, 13, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Browne et al. (U.S. Patent 7,228,290 B2) in view of Microsoft Excel.

As for claims 10, 11, 13 and 14 Browne teaches simulating financial portfolios but fails to teach making it a generalized function that can be called by simply giving it the proper arguments but Excel provides such analysis tools that can be called simply by providing the proper arguments and includes a random number generator that could support many of these analysis functions. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate scenario analysis into Excel because of the analysis package that was already part of Excel whose focus included financial functions it would be obvious to add greater depth to that analysis.

As per claim 10 Browne teaches:

A method of simulating a portfolio of financial instruments over a plurality of scenarios, said method comprising the steps of:

(a) constructing a scenario generator, wherein said scenario generator produces elements of a sequence governed by a sequential process, wherein said scenario generator comprises a common generator interface, and wherein said common generator interface comprises a first function that generates the next element of said sequence and a second function that returns the element most recently generated by said first function; (See *Browne column 1 lines 64- column 2 line 11*. Demonstrates generating a scenario using a stochastic function. It is old and well known in the art that a stochastic function is defined as a random process where the probable result at each

Art Unit: 3694

step depends on the results of previous steps. It is admitted prior art that it is well known in art of computers to write results to memory and then read them from memory. Therefore it would have been obvious to user of ordinary skill in the art at the time the invention was made to generate the necessary data using a stochastic function as needed storing what data could be needed later in memory and then reading it from memory.)

(b) constructing one or more pricing maps, wherein each pricing map is associated with an instrument in a portfolio; (See *Browne column 1 lines 64-column 2 line 11*. Changing the value of one of the risk factors to produce a change in the value of the security creates a pricing map.)

(c) composing said one or more pricing maps with said scenario generator to obtain a pricing generator; (See *Browne column 1 lines 64-column 2 line 11*. Changing the value of the risk factors to produce a change in the value of the security creates pricing maps, which together encompass a scenario.) and

(d) using said pricing generator in performing a simulation to obtain prices for a plurality of instruments. (See *Browne Figure 1 simulations are run to determine the pricing for instruments*.)

As for claim 11 Browne Teaches:

The method as claimed in claim 10, wherein step (c) comprises the steps of composing said one or more pricing maps to produce a composite pricing map, and composing said composite pricing map with said scenario generator to obtain a pricing generator. (See *Browne column 1 lines 64-column 2 line 11*. Changing the value of the

risk factors to produce a change in the value of the security creates pricing maps, which together encompass a scenario.)

As per claim 13 Browne teaches:

A method of simulating a portfolio of financial instruments over a plurality of scenarios, said method comprising the steps of:

(a) constructing a stochastic sequence generator, wherein said stochastic sequence generator produces elements of a sequence governed by a sequential process, wherein said stochastic sequence generator comprises a common generator interface, where said common generator interface comprises a first function that generates the next element of said sequence and a second function that returns the element most recently generated by said first function; (*See Browne column 1 lines 64-column 2 line 11. Demonstrates generating a scenario using a stochastic function. It is old and well known in the art that a stochastic function is defined as a random process where the probable result at each step depends on the results of previous steps. It is admitted prior art that it is old and well known in art of computers to write results to memory and then read them from memory. Therefore it would have been obvious to user of ordinary skill in the art at the time the invention was made to generate the necessary data using a stochastic function as needed storing what data could be needed later in memory and then reading it from memory.*)

(b) constructing one or more pricing accumulators, wherein each pricing accumulator is associated with an instrument in a portfolio, wherein each pricing accumulator comprises an internal state and a common accumulator interface, said

internal state having a current value, said current value being a function of one or more past values of said internal state and one or more data values received as input by said accumulator, said common accumulator interface comprising a third function to receive as input said one or more data values and to update said internal state to a new current value, and a fourth function that returns a value corresponding to the current value of the internal state; (See *Browne column 1 lines 64-column 2 line 11*. Changing the value of one of the risk factors to produce a change in the value of the security creates a pricing map. It is admitted prior art that it is old and well known in art of computers to write results to memory and then read them from memory. Therefore it would have been obvious to user of ordinary skill in the art at the time the invention was made to write as many of the results of mapping the pricing results to memory as considered useful to be read back later when needed as an obvious to try solution.)

(c) composing said one or more pricing accumulators with said stochastic sequence generator to obtain a pricing generator; (See *Browne column 1 lines 64-column 2 line 11*. Changing the value of one of the risk factors, which is done using a stochastic function produces a change in the value of the security creating a pricing map. It is admitted prior art that it is old and well known in art of computers to write results to memory and then read them from memory. Therefore it would have been obvious to user of ordinary skill in the art at the time the invention was made to write as many of the results of mapping the pricing results to memory as considered useful to be read back later when needed which is accumulating the pricing which would be necessary to analyze and use the results.)

(d) using said pricing generator in performing a simulation to obtain prices for a plurality of instruments at each time step in a scenario; (See *Browne column 1 lines 64-column 2 line 11.*) and

(e) repeating step (d) over a plurality of scenarios. (See *Browne column 1 lines 64-column 2 line 11 and Figures 1 and 2.* Figure 2 shows multiple scenarios are being run to be combined into a simulated price matrix. Figure 1 shows that it is for multiple priced instruments which requires it to be run for multiple instruments.)

As per claim 14 Browne teaches:

The method as claimed in claim 13, wherein step (c) comprises the steps of composing said one or more pricing accumulators to produce a composite pricing accumulator, and composing said composite pricing accumulator with said stochastic sequence generator to obtain a pricing generator. (See *Browne column 1 lines 64-column 2 line 11.* Changing the value of one of the risk factors, which is done using a stochastic function produces a change in the value of the security creating a pricing map. It is admitted prior art that it is old and well known in art of computers to write results to memory and then read them from memory. Therefore it would have been obvious to user of ordinary skill in the art at the time the invention was made to write as many of the results of mapping the pricing results to memory as considered useful to be read back later when needed which is accumulating the pricing.)

8. Claims 12, 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Browne, in view of Microsoft Excel, Official Notice, admitted prior art and Mark to Future (Ron S. Dembo, Andrew R. Aziz, Dan Rosen, and Michael Zerbs, May 2000.)

Art Unit: 3694

As per claims 12 and 15:

While Browne, Microsoft Excel, Official Notice, and admitted prior art address claims 10 and 13 (See claims 10 and 13 above) they don't address populating a Mark to Future cube but Mark to Fortune teaches it on pages 39 and 40. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply the Mark to the Future methodology to solving a problem involving simulations to manage risk/reward management.

As per Claim 16:

While Browne, Microsoft Excel, Official Notice, admitted prior art, and Mark to Future address claim 15. It is admitted prior art that it is old and well in the art of computer programming to call a function more than once with different input values even recursively having a function call itself is well known. Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to call the same function with different input values to solve a problem.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to

Applicant's disclosure:

- Lafore teaches that libraries consist of subroutines (some of which are called functions) to be called by a developer when they want to execute that particular subroutine; objects are simply a group of subroutines in a particular library.

- Rumbaugh teaches object oriented design where software is organized as objects that incorporate both data structure and behavior.
- The Penguin English Dictionary defines stochastic as relating to or denoting random sequential processes in which the probabilities at each step depend on the outcome of previous steps: stochastic models.

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

11. **Examiner's Note:** The Examiner has cited particular columns and line numbers in the references as applied to the claims for the convenience of the applicant.

Although the specified citations are representative of the teachings in the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant, in preparing the responses, to fully consider the references in entirety as potentially teaching all or part

of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the examiner.

Inquire

Any inquiry concerning this communication from the examiner should be directed to Scott S. Trotter, whose telephone number is 571-272-7366. The examiner can normally be reached on 8:30 AM – 5:00 PM, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James P. Trammell, can be reached on 571-272-6712.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

The fax phone number for the organization where this application or proceeding is assigned are as follows:

(571) 273-8300	(Official Communications; including After Final Communications labeled "BOX AF")
(571) 273-6705	(Draft Communications)

Scott Trotter
8/16/2007


ELLA COLBERT
PRIMARY EXAMINER